

# **The use of autonomic modulation device to control training performance after high-intensity interval training program**

Vicente Javier Clemente Suárez, Juan Jaime Arroyo Toledo

## **Abstract**

The aim of the present research was to analyze the autonomic response in a group of trained swimmers before and after conducting a 4-week period of high-intensity interval training (HIT). Heart rate variability was analyzed in 14 swimmers ( $16.2 \pm 2.6$  years,  $169.1 \pm 10.2$  cm and  $61.3 \pm 9.9$  kg) in basal condition and during a HIT session before and after completing a training period. The HIT session that was evaluated consisted of:  $16 \times 25$  m maximum speed, resting 30 s between sets. Participants combined aerobic training with tethered swimming and HIT sessions three times per week in a period of 4 weeks. Results showed a significantly decrease ( $p < 0.05$ ) of the standard deviation of the NN intervals (SDNN), the standard deviation of differences between adjacent NN intervals (SDSD), the number of successive difference of intervals which differ by more than 50 ms (NN50), after the training period. Results showed a higher parasympathetic activation besides improvements in autonomic adaptation after HIT training period.

Keywords:

Performance, Nervous system, Swimming, Test, Periodization